

Institute of High Performance Computing (IHPC)

No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
1	Directors Office	Dr Zhang Yong Wei	Deputy Executive Director /	zhangyw@ihpc.a-star.edu.sg	1. Modelling and simulations of CO2 reduction reaction and H2 evolution reaction	1. Electrochemical reduction reaction to convert CO2 to high-value chemicals and products is promising to realize green energy and green economy. In this project, we will employ state-of-the-art first-principles methods to design high-performance catalysts with well-defined atomic configuration and high-precision to convert CO2 to specific high-value products, such as ethylene and ethanol.	NUS/NTU/SUTD	https://scholar.google.com.sg/citations?user=6ARm7PcAAAAJ&hl=en https://www.researchgate.net/profile/Yong_Wei_Zhang

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2	Directors Office	Dr Zhang Yong Wei	Deputy Executive Director /	zhangyw@ihpc.a-star.edu.sg	2. Modelling and simulation of the synthesis, structures and physical properties of novel semiconducting nanomaterials for high-performance, low-energy consumption microelectronics.	2. Moore's law has nearly reached its end. The next-generation microelectronics demand high-performance and yet low-energy consumption. In this project, we will employ state-of-the-art modelling and simulation methods and tools to explore the synthesis, structures, and properties of novel nanomaterials, with aim to discover novel semiconducting materials for the next-generation microelectronic devices.	NUS/NTU/SUTD	https://scholar.google.com.sg/citations?user=6ARm7PcAAAAJ&hl=en https://www.researchgate.net/profile/Yong_Wei_Zhang
3	Directors Office	Dr Zhang Yong Wei	Deputy Executive Director /	zhangyw@ihpc.a-star.edu.sg	3. Modelling and simulations of structures, defects and mechanical properties of high entropy alloys (HEAs).	3. HEAs have attracted increasing attention due to their excellent mechanical properties, such as outstanding structural stability and a fascinating balance between strength and ductility, which are important for structural applications. In this project, we will develop high throughput atomistic simulations methodologies to generate a large HEA database (composition, processing condition, physical descriptors, microstructures, and physical properties). Machine learning will be then employed to induce new materials laws and principles, and further to guide the development of HEAs for engineering applications.	NUS/NTU/SUTD	https://scholar.google.com.sg/citations?user=6ARm7PcAAAAJ&hl=en https://www.researchgate.net/profile/Yong_Wei_Zhang

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4	Directors Office	Dr Zhang Yong Wei	Deputy Executive Director/P	zhangyw@ihpc.a-star.edu.sg	4. Modelling and simulations of metallic material processes in additive manufacturing	4. Additive manufacturing (AM) is considered as an important element in Industry 4.0. However, the quality inconsistency and poor reliability of AM-produced components/parts are still the hurdles for their wide industry adoption. In this project, we will develop additive manufacturing platform (Digital Twin) to simulate the AM process from powder to part. With the AM digital twin, we are able to link the processing conditions (e.g. beam power, scan speed, hatch distance ...) to the printing outcomes (e.g., porosity, grain structure, phase structure, residual stress and distortion ...), which will provide powerful information for controlling AM processes and optimize the printing conditions.	NUS/NTU/SUTD	https://scholar.google.com.sg/citations?user=6ARm7PcAAAAJ&hl=en https://www.researchgate.net/profile/Yong_Wei_Zhang

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5	Electronics & Photonics (EP)	Dr BUI Viet Phuong	Senior Scientist I/Group Man	buivp@ihpc.a-star.edu.sg		<ul style="list-style-type: none"> 1. Non-destructive testing and quantification 2. High-fidelity ray tracing-based modeling 3. Efficient wireless channel modeling for complex environments 	NUS/NTU/SUTD	
6	Electronics & Photonics (EP)	Dr. Gao Xianke Richard	Senior Scientist III	gaoxk@ihpc.a-star.edu.sg		Electromagnetic interference / compatibility, metamaterial and advanced material, antenna and RFID, wireless energy harvesting, robust design and optimization	NUS/NTU/SUTD	

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7	Electronics & Photonics (EP)	Hla Nu Phyu	Scientist III	hla_nu_phyu@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Computational electromagnetic, Modeling, design and analysis of electromagnetic devices for both low frequency and high frequency applications 2. Wireless power transfer 3. Electrostatic, ESD 4. EMI, EMC, EMS of high speed circuits 	NUS/NTU/SUTD	
8	Electronics & Photonics (EP)	Dr Khoo Eng Huat	Senior Scientist I	khooeh@ihpc.a-star.edu.sg		Nanophotonics, Optics, Biophotonics, Numerical modeling	NUS/NTU/SUTD	
9	Electronics & Photonics (EP)	Dr KOH Wee Shing	Senior Scientist II	kohws@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1) Physics-driven AI models for environmental models 2) Daylight, Shortwave, Longwave radiation, and energy modelling for the cities 3) Towards lowering urban heat island with Generative design using physics-based simulations 	NUS/NTU/SUTD	

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10	Electronics & Photonics (EP)	Liu Enxiao	SeniorScientistIII/Dy Depart	liuex@ihpc.a-star.edu.sg		Metamaterial antenna, mmWave communication for 5G & beyond, Satellite communication, 3D IC and packaging, AI chips, Computational electromagnetics	NUS/NTU/SUTD	
11	Electronics & Photonics (EP)	Dr Liu Zhengtong	Scientist II	liuz@ihpc.a-star.edu.sg		Plasmonics for bio-medical sensing, metasurface design & engineering, nanophotonics modeling	NUS/NTU/SUTD	
12	Electronics & Photonics (EP)	Dr Ching Eng (Jason) PNG	Senior Scientist II/Departme	pngce@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. AI for electronics and photnics IC design 2. High speed optical/photonic communications 3. Wireless Charging and Harvesting 4. Electromagnetic Compatibility and Interference (EMC and EMI) 5. Plasmonics, Biophotonics, 6. Quantum Photonics in Quantum Key Distribution 7. Quantum Computing algorithms in electromagnetics and optics 	NUS/NTU/SUTD	

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13	Electronics & Photonics (EP)	BAI Ping	Senior Scientist III	baiping@ihpc.a-star.edu.sg		<ul style="list-style-type: none"> 1. Nanophotonics (cavities, plasmonics, planar optics) 2. Quantum Photonics (quantum computing on optics, qubit-photon coupling) 	NUS/NTU/SUTD	
14	Engineering Mechanics (EM)	Dr Jerry Quek	Senior Scientist II/Group Manager	quekss@ihpc.a-star.edu.sg		<ul style="list-style-type: none"> 1. Computational mechanics of materials 2. Grain boundary evolution 	NUS/NTU/SUTD	
15	Engineering Mechanics (EM)	Dr Liu Jun	Scientist III	liuj@ihpc.a-star.edu.sg		Numerical Models to Calculate Temperature Distribution across Polymer Matrix Composite Laminates	NUS/NTU/SUTD	

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16	Engineering Mechanics (EM)	Dr Zhang Zhiqian	Senior Scientist I	zhangz@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Multiscale computational modeling of metals manufactured by AM process 2. Framework development of Physics-based AI in structure property correlations for Structural Materials 3. Topology optimization of metamaterials and structures for improved performance 	NUS/NTU/SUTD	

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17	Engineering Mechanics (EM)	Dr. Guo Tianfu	Senior Scientist III	guotf@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Crystal plasticity finite element modeling of Structural Alloys 2. Computational homogenization & multiscale modeling for microstructures 	NUS/NTU/SUTD	
18	Engineering Mechanics (EM)	SU Zhoucheng	Scientist III	suzc@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Design, analysis, and optimization of composite materials using multiscale computational models. 2. Machine learning (ML) assisted computational models for robust and efficient damage analysis of composite materials. 	NUS/NTU/SUTD	

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19	Engineering Mechanics (EM)	Muhammad Ridha, PhD	Scientist III	ridha_muhammad@ihpc.a-star.edu.sg		Computational modelling of fatigue damage progression in composite materials and structures	NUS/NTU/SUTD	
20	Systems Science (SS)	Feng Ling	Scientist II	fengl@ihpc.a-star.edu.sg		1 Complexity theory of Deep Learning 2 Complex networks	NUS/NTU/SUTD	
21	Systems Science (SS)	Dr Fu Xiuju	Senior Scientist II/Group Ma	fuxj@ihpc.a-star.edu.sg		1. Big spatial-temporal data analytic for traffic prediction 2. Maritime traffic analysis and simulation for safety enhancement 3. Spatial-temporal data analysis for dengue risk modeling and mitigation	NUS/NTU/SUTD	

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22	Systems Science (SS)	Dr Neil Huynh Hoai Nguyen	Scientist I	huynhnhn@ihpc.a-star.edu.sg	Urban Complexity, Spatial Analysis and Modelling, Complex Networks, Statistical Physics		NUS/NTU/SUTD	
23	Systems Science (SS)	Dr Muhamad Azfar Bin Ramli	Scientist III/Group Manager	ramlimab@ihpc.a-star.edu.sg	1. Complex network analysis 2. Large-scale urban simulations 3. Transport systems modelling		NUS/NTU/SUTD	

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24	Systems Science (SS)	Dr. Rakhi Manohar Mepparambath	Scientist I	rakhi_manohar_mepparambath@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Discrete choice modelling 2. Transportation systems modelling 3. Urban freight modelling 	NUS/NTU/SUTD	
25	Systems Science (SS)	Dr Tan Hong En	Scientist I	tan_hong_en@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Traffic modelling (dynamics of bus/metro systems) 2. Complex networks (non-linear systems, phase transitions, emergent phenomena) 	NUS/NTU/SUTD	
26	Systems Science (SS)	Yin Xiao Feng	Senior Scientist I	yinx@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Manufacturing planning and scheduling 2. Logistic and supply chain optimisation 3. Maritime and port simulation and optimisation 4. Knowledge discovery and feature extraction 	NUS/NTU/SUTD	

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27	Systems Science (SS)	Yin Xiao Feng	Senior Scientist I	yinx@ihpc.a-star.edu.sg		<ul style="list-style-type: none"> 1. Manufacturing planning and scheduling 2. Logistic and supply chain optimisation 3. Maritime and port simulation and optimisation 4. Knowledge discovery and feature extraction 	NUS/NTU/SUTD	

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28	Social & Cognitive Computing (SCC)	Dr Ilya Farber	Senior Scientist II/Group Manager	farberi@ihpc.a-star.edu.sg	Computational cognitive science, tools for cognitive assessment, agent-based modeling of commuter behavior	Computational cognitive science, tools for cognitive assessment, agent-based modeling of commuter behavior	NUS/NTU/SUTD	
29	Social & Cognitive Computing (SCC)	Dr Ho Seng Beng	Senior Scientist II/Dy Deputy	hosb@ihpc.a-star.edu.sg	Grounded Natural Language Understanding (NLU)	To achieve natural language understanding, an NLU system must have a representational framework in which the words and symbols used are linked with their grounded meaning – e.g., if it is a word about an object, then the system should have a representation of the visual and physical features of the object involved. Success is demonstrated by the system being able to take the correct actions/emit the correct responses in response to natural language input.	NUS/NTU/SUTD	

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30	Social & Cognitive Computing (SCC)	Dr Kenneth Kwok	Principal Scientist II/Group M	kenkwok@ihpc.a-star.edu.sg	1. Cognitive Systems 2. Cognitive Architectures 3. Commonsense Reasoning 4. Knowledge Representation	1. Cognitive Systems 2. Cognitive Architectures 3. Commonsense Reasoning 4. Knowledge Representation	NUS/NTU/SUTD	
31	Social & Cognitive Computing (SCC)	Dr Quek Boon Kiat	Senior Scientist III/Department	quekbk@ihpc.a-star.edu.sg	Computational modelling of cognitive processes, psychological inference, and complex social phenomena. AI approaches for autonomy and agency	Computational modelling of cognitive processes, psychological inference, and complex social phenomena. AI approaches for autonomy and agency	NUS/NTU/SUTD	

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32	Social & Cognitive Computing (SCC)	Dr Yang Jinping	Senior Scientist II/Group Manager	yangyp@ihpc.a-star.edu.sg	Social computing, social analytics, behavioural informatics, cognitive computing.	Social computing, social analytics, behavioural informatics, cognitive computing.	NUS/NTU/SUTD	
33	Social & Cognitive Computing (SCC)	Dr Dongkyu Choi	Senior Scientist	choi_dongkyu@ihpc.a-star.edu.sg	Cognitive Architecture for Physical Agents	Cognitive architectures provide an infrastructure for intelligent agents. These enables agents to have various psychologically-inspired capabilities like inference, goal reasoning, decision making, problem solving, and learning. We aim for a complete human-like cognitive architecture, with which we can develop embodied agents in physical domains like drones and other robots	NUS/NTU/SUTD	http://www.dongkyu.com/
34	Social & Cognitive Computing (SCC)	Dr Basura Fernando	Scientist	fernando_basura@ihpc.a-star.edu.sg	Adaptive AI: Learning to adapt to changes and new environments	AI needs to learn to change so that they can adapt to solve new but related problems. For example, a robot running a convolutional neural network trained to segment pedestrians during daytime should also be able to perform well at night. Such adaptation is required in most AI applications. Class of AI solutions that solve this kind of problems are known as Domain Adaptation. Domain adaptation aims at developing new algorithms that allow us to deploy predictors trained on one distribution to work on different but related distributions. Ideally, when the model identifies that samples are drawn from a different distribution, then it should activate the domain adaptation procedures. Project aims to develop neural network models that can adapt without degrading the overall performance across multiple domains and new environments in a continuously changing world.	NUS/NTU/SUTD	https://basurafernando.github.io/

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35	Social & Cognitive Computing (SCC)	Nguyen Thanh Son	Scientist	nguyen_thanh_son@ihpc.a-star.edu.sg	Integrating Computer Vision (CV) and Natural Language Processing (NLP) for Text Generation	<ul style="list-style-type: none"> - Studying the relations between language and vision. - Designing (multimodal) neural network-based models for generating text based on vision information. - Example of tasks: "review generation", "image captioning (short/long)", and "photograph-critique generation". 	NUS/NTU/SUTD	
36	Social & Cognitive Computing (SCC)	Vigneshwaran Subbaraju	Scientist	vigneshwaran_subbaraju@ihpc.a-star.edu.sg	Multi-task learning for simultaneous estimation of privacy risk and memorability of lifelog images	<ul style="list-style-type: none"> • Lifelog images are obtained from the egocentric point of view via wearable cameras. • Each image associated with a subjective privacy risk score based on its content. • Each image also associated with a subjective memorability score. • Investigate multitask learning to simultaneously estimate the privacy risk and memorability of an image. • Study context based variations in memorability and privacy risk. 	NUS/NTU/SUTD	
37	Social & Cognitive Computing (SCC)	Jason Yue Yanzhen	Scientist	yueyz@ihpc.a-star.edu.sg	Digital nudging design and online communities for enhanced healthcare interventions	<p>Investigate the impacts of healthcare information systems/technologies to provide guidance on how they can be designed/used/managed for better outcomes.</p> <p>Health Informatics. Computational Social Science</p>	NUS/NTU/SUTD	
38	Social & Cognitive Computing (SCC)	Dr. ZHONG XIN	Scientist	zhongxa@ihpc.a-star.edu.sg	<ol style="list-style-type: none"> 1. Data analytics and AI in healthcare 2. AI in Denture Design 3. Dental Biometrics 	<ol style="list-style-type: none"> 1. Data analytics for ageing and its related chronic conditions, e.g. Diabetes/Dementia; Find ageing biomarkers 2. Automation of Denture Design 3. 2D/3D dental record matching for human identification 	NUS/NTU/SUTD	

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39	Materials Science and Chemistry (MSC)	Dr Rajeev Ahluwalia	Senior Scientist II	rajeev@ihpc.a-star.edu.sg		Microstructural evolution in phase transforming materials Modelling of domain patterns in ferroic materials Modelling of mechanical behaviour (fracture and plasticity)	NUS/NTU/SUTD	
40	Materials Science and Chemistry (MSC)	Teck Leong TAN	Senior Scientist I/Group Manager	tantl@ihpc.a-star.edu.sg		1. Machine-learning/AI for new alloy discovery (e.g., high entropy alloys) 2. High-throughput first-principles search for corrosion-resistant alloys 3. Prediction of alloy phase diagrams	NUS/NTU/SUTD	
41	Materials Science and Chemistry (MSC)	Ye Jun	Scientist III	yej@ihpc.a-star.edu.sg		Quantum computing algorithms and software for chemistry and materials applications	NUS/NTU/SUTD	
42	Materials Science and Chemistry (MSC)	Ramanarayan Hariharaputran	senior scientist I	hariharaputran@ihpc.a-star.edu.sg		Modelling microstructural evolution during additive manufacturing in Ni, Al and Ti alloys	NUS/NTU/SUTD	

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43	Materials Science and Chemistry (MSC)	Mehdi Jafary Zadeh	Scientist II	zadehmj@ihpc.a-star.edu.sg		Performing AI-empowered physics-based research on: 1- Mechanical and physical metallurgy of high temperature alloys for aerospace applications 2- Design and development of innovative biocompatible alloys for Medtech 3- Additive Manufacturing	NUS/NTU/SUTD	
44	Materials Science and Chemistry (MSC)	Dr. Jarvis Loh Guan Chee	Scientist III	lohgc@ihpc.a-star.edu.sg		(1) Multimodal Generative AI with Molecular Graph Domain Knowledge (2) AI and Data Analytics for Flavour Enhancement and Creation	NUS/NTU/SUTD	
45	Computing & Intelligence (C&I)	Dr Saurabh Aggarwal	Scientist II	saurabh_aggarwal@ihpc.a-star.edu.sg		Graph Based AI; Physics based AI; Multi-Objective Optimization	NUS/NTU/SUTD	

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46	Computing & Intelligence (C&I)	Dr Aung Myat Thu Linn	Scientist II	myat_thu_linn_aung@ihpc.a-star.edu.sg		Deep learning with reconfigurable hardware	NUS/NTU/SUTD	
47	Computing & Intelligence (C&I)	Dr Joyjit Chatteraj	Scientist II	joyjit_chatteraj@ihpc.a-star.edu.sg		Material design/ Physics-based Artificial Intelligence/ Physics simulations	NUS/NTU/SUTD	
48	Computing & Intelligence (C&I)	Dr Cui Yingnan	Scientist II	cuiyn@ihpc.a-star.edu.sg		Architecture-aware deep neural network optimisation for edge computing	NUS/NTU/SUTD	
49	Computing & Intelligence (C&I)	Dr Farzam Farbiz	Senior Scientist II	farzam_farbiz@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Physics-based Artificial Intelligence / Optimization for manufacturing design using GAN and Reinforcement Learning 2. Robust AI for IoT and IIoT applications using combination of deep learning and physics simulation 3. Deep learning for False Data Attacks in Energy Sector and Smart Grids 	NUS/NTU/SUTD	

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50	Computing & Intelligence (C&I)	Dr Feng Yangqin	Scientist I	feng_yangqin@ihpc.a-star.edu.sg	Deep learning for medical image analysis		NUS/NTU/SUTD	
51	Computing & Intelligence (C&I)	Dr Gao Fei	Scientist III/Group Manager	gaofei@ihpc.a-star.edu.sg	1. Automated Machine Learning (data preprocessing, feature engineering, hyper-parameter optimisation, model selections, NAS) 2. Lifelong/incremental/continual learning 3. High-performance Autonomous AI platform to democratise AI technologies 4. Deep learning and reinforcement learning		NUS/NTU/SUTD	

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52	Computing & Intelligence (C&I)	Dr Rick Goh	Senior Scientist III/Department	gohsm@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Artificial intelligence 2. Physics-based AI to couple physics knowledge and AI 3. Efficient AI on data and computation efficiency 4. Multimodal AI for Healthcare 5. Autonomous AI to democratise AI and HPC 6. Safe and Robust AI 7. High performance computing for edge AI computing 8. Parallel and distributed computing 	NUS/NTU/SUTD	https://sites.google.com/view/rickgoh/home
53	Computing & Intelligence (C&I)	Dr William Gu	Scientist I	william_gu@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Learning Meta-Features of a Dataset 2. Estimating the Model Performance using the Meta-Features of the Dataset 	NUS/NTU/SUTD	

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54	Computing & Intelligence (C&I)	Dr Brahim Hamadi Charef	Scientist II	brahim_hamad@ihpc.a-star.edu.sg		1. Physics-based Artificial Intelligence 2. Optimization for Design (materials, circuits, etc.)	NUS/NTU/SUTD	
55	Computing & Intelligence (C&I)	Dr Huang Tian	Scientist I	huang_tian@ihpc.a-star.edu.sg		Incremental learning for edge AI	NUS/NTU/SUTD	
56	Computing & Intelligence (C&I)	Dr Hussain Shaista	Scientist II	hussains@ihpc.a-star.edu.sg		Physics-based AI for material design	NUS/NTU/SUTD	
57	Computing & Intelligence (C&I)	Dr Li Shaohua	Scientist II	li_shaohua@ihpc.a-star.edu.sg		1. Self-supervised Learning for Computer Vision 2. Natural Language Processing Methods for DNA Sequence Analysis	NUS/NTU/SUTD	

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58	Computing & Intelligence (C&I)	Dr Liu Lili	Scientist I	liu_lili@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Weakly-supervised incremental multimodal AI 2. Measure how transferable of transfer Learning 	NUS/NTU/SUTD	
59	Computing & Intelligence (C&I)	Dr Liu Ping	Scientist II	liu_ping@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Automated Machine Learning 2. Filter pruning for model compression 3. Unsupervised domain adaptation for semantic segmentation 4. Deepfake detection, facial activity analysis 5. Adversarial learning 	NUS/NTU/SUTD	

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60	Computing & Intelligence (C&I)	Dr Liu Yong	Senior Scientist II/Dy Dept D	liuyong@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Multimodal Machine Learning 2. Machine Learning with Knowledge Graph 3. Self-supervised Machine learning 4. Artificial Intelligence for Healthcare 5. Deep Reinforcement Learning 	NUS/NTU/SUTD	
61	Computing & Intelligence (C&I)	Dr Luo Tao	Scientist II/Group Manager	luo_tao@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> 1. Big data and machine learning systems on emerging hardware. 2. Efficient AI for edge-AI computing. 3. Acceleration of Compressed Convolution Neural Networks Using Computing-in-Memory Technologies. 4. Software defined networking for high performance computing. 	NUS/NTU/SUTD	

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62	Computing & Intelligence (C&I)	Dr Man Mengren	Scientist I	mengren_man@ihpc.a-star.edu.sg	1. AI and materials informatics 2. Geometric deep learning		NUS/NTU/SUTD	
63	Computing & Intelligence (C&I)	Dr Tomasz	Scientist II	maszcyk_tomasz_karol@ihpc.a-star.edu.sg	project/topic already reserved by PhD candidate		NUS/NTU/SUTD	
64	Computing & Intelligence (C&I)	Dr Mohamed Salahuddin	Senior Scientist II	mohdsh@ihpc.a-star.edu.sg	1. Physics-based machine Learning 2. Predictive and prescriptive analytics		NUS/NTU/SUTD	
65	Computing & Intelligence (C&I)	Dr Renuga Kanagavelu	Scientist II	renuga_k@ihpc.a-star.edu.sg	1. Privacy preserving Federated learning. 2. Communication efficient federated learning.		NUS/NTU/SUTD	

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66	Computing & Intelligence (C&I)	Dr Ricardo Shirota Filho	Scientist III	ricardo_shirota_filho@ihpc.a-star.edu.sg	Autonomous AI (automation of machine learning)		NUS/NTU/SUTD	
67	Computing & Intelligence (C&I)	Dr Wang Zhehui	Scientist I	wang_zhehui@ihpc.a-star.edu.sg	Efficient machine learning using emerging devices		NUS/NTU/SUTD	
68	Computing & Intelligence (C&I)	Dr Wei Qingsong	Senior Scientist I	wei_qingsong@ihpc.a-star.edu.sg	1. Federated Machine Learning 2. Distributed Machine Learning and In-memory Computing 3. Acceleration of AI and Big Data with Emerging Hardware		NUS/NTU/SUTD	
69	Computing & Intelligence (C&I)	Dr Xu Xinxing	Scientist II	xuxinx@ihpc.a-star.edu.sg	1. Deep learning using privileged information 2. Multimodal weakly-supervised learning for medical diagnosis		NUS/NTU/SUTD	

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No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
70	Computing & Intelligence (C&I)	Dr Yan Ming	Scientist I	yan_ming@ihpc.a-star.edu.sg	Low-resource machine Learning on NLP		NUS/NTU/SUTD	
71	Computing & Intelligence (C&I)	Dr Shen Yan	Scientist II	shenyan@ihpc.a-star.edu.sg	physics-based machine learning, tool wear prediction with physics guided feature engineering		NUS/NTU/SUTD	
72	Computing & Intelligence (C&I)	Dr Yang Feng	Scientist III	yangf@ihpc.a-star.edu.sg	1. Physics-based Machine Learning 2. Machine Learning for Predictive Maintenance 3. Explainable Machine Learning		NUS/NTU/SUTD	
73	Computing & Intelligence (C&I)	Dr Yang Liwei	Scientist II	yang_liwei@ihpc.a-star.edu.sg	1. Heterogeneous computing for edge AI 2. Hardware and software co-optimisation for deep learning with emerging techniques		NUS/NTU/SUTD	

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No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
74	Computing & Intelligence (C&I)	Dr Zhang Chi	Scientist I	zhang_chi@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> Efficient AI Machine learning for edge AI Distributed optimization Federated learning 	NUS/NTU/SUTD	
75	Computing & Intelligence (C&I)	Dr Zhen Liangli	Scientist I	zhen_liangli@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> Efficient AI Adversarial machine learning Multimodal machine learning Federated learning 	NUS/NTU/SUTD	
76	Computing & Intelligence (C&I)	Dr Joey Zhou	Scientist III/Group Manager	joey_zhou@ihpc.a-star.edu.sg		Low-resource machine learning Transfer Learning/domain adaptation	NUS/NTU/SUTD	
77	Computing & Intelligence (C&I)	Dr Zhu Huafei	Senior Scientist I	zhu_huafei@ihpc.a-star.edu.sg		<ol style="list-style-type: none"> Privacy-preserving Techniques and Their Applications (e.g., Could Computing, off-chain computation, Federated Learning) Light-weight, Highly-scalable Multi-party Computation within Secret Sharing framework and Its Applications (e.g., Could Computing, off-chain computation, Federated Learning) 	NUS/NTU/SUTD	

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No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
78	Computing & Intelligence (C&I)	Dr Tanvi Verma	Scientist II	vermat@ihpc.a-star.edu.sg	1. Multi Agent System 2. Deep Learning and reinforcement learning 3. Automated AI (network architecture search) 4. Incremental learning		NUS/NTU/SUTD	https://sites.google.com/view/tanviverma
79	Computing & Intelligence (C&I)	Dr Gladia Hotan	Scientist I	hotangc@ihpc.a-star.edu.sg	State space modelling for EEG source localization	Using state-space models to source localize neural oscillations under different states of unconsciousness; Quantifying source-space functional connectivity using canonical coherence	NUS/NTU/SUTD	
80	Computing & Intelligence (C&I)	Dr Wu Chengyuan	Scientist I	wu_chengyuan@ihpc.a-star.edu.sg	Physics-based Machine Learning/ Topological Data Analysis (TDA)	Research on topics related to Physics-based AI (e.g. Physics-Informed Neural Networks)/ Research on applications of topological data analysis to physics related data.	NUS/NTU/SUTD	
81	Computing & Intelligence (C&I)	Dr Li Shaohua	Scientist II	li_shaohua@ihpc.a-star.edu.sg	1. Image segmentation 2. video analysis	Use deep learning and transformers to analyze image and video data.	NUS/NTU/SUTD	

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No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
82	Computing & Intelligence (C&I)	Dr Xu Xinxing	Scientist II	xuxinx@ihpc.a-star.edu.sg	1. Multimodal Learning for medical data analysis. 2. Knowledge distillation	Use multimodal learning to analyze medical data with multimodal inputs.	NUS/NTU/SUTD	
83	Computing & Intelligence (C&I)	Dr Dax Koh	Scientis I	dax_koh@ihpc.a-star.edu.sg	1. Quantum advantage with restricted quantum computers 2. Estimating quantum expectation values using classical shadows	In the first project, we will explore methods to rigorously prove separations between the computational powers of classical computers and that of restricted quantum computers. In the second project, we will explore ways to reduce the resources needed to make the algorithm more amenable to implementation on near-term quantum computers.	NUS/NTU/SUTD	
84	Computing & Intelligence (C&I)	Dr Elham Bagheri	Scientis I	bagheri_elham@ihpc.a-star.edu.sg	1. AI for signal and time series analysis 2. Image and video analysis. computer vision	Using automated machine learning algorithms for analysis of time series data, anomaly detection, making predictions. Apply AI methods including deep learning for image and video analysis, segmentation, etc.	NUS/NTU/SUTD	

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No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
85	Fluid Dynamics (FD)	Dr Cheng Ming	Senior Scientist II	chengm@ihpc.a-star.edu.sg	Multi-phase and multi-component flows, Vortex dynamics		NUS/NTU/SUTD	
86	Fluid Dynamics (FD)	My Ha DAO	Senior Scientist I\Group Man	daomh@ihpc.a-star.edu.sg	Hydrodynamics & model reduction		NUS/NTU/SUTD	
87	Fluid Dynamics (FD)	Dr Evert Klaseboer	Senior Scientist I	evert@ihpc.a-star.edu.sg	Boundary element methods of various physical phenomena such as sound, electromagnetic and elastic waves		NUS/NTU/SUTD	

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No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
88	Fluid Dynamics (FD)	Dr Le Duc Vinh	Senior Scientist II/Group Manager	ledv@ihpc.a-star.edu.sg		Microfluidics, complex fluids.	NUS/NTU/SUTD	
89	Fluid Dynamics (FD)	Fong Yew LEONG	Scientist III	leongfy@ihpc.a-star.edu.sg		Micro and nano fluidics/ Biofluid dynamics/ Transport phenomena	NUS/NTU/SUTD	
90	Fluid Dynamics (FD)	Dr Lim Chi Wan	Senior Scientist I	limcw@ihpc.a-star.edu.sg		1. Mesh Generation Automation 2. Computational Geometry with AI	NUS/NTU/SUTD	

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No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
91	Fluid Dynamics (FD)	Dr Nguyen Vinh Tan	Senior Scientist II\Group Manager	nguyenvt@ihpc.a-star.edu.sg		Hydrodynamics, aerodynamics, fluid structure interactions, machine learning for turbulent flows.	NUS/NTU/SUTD	
92	Fluid Dynamics (FD)	Dr Cary Kenny Turangan	Senior Scientist II	cary@ihpc.a-star.edu.sg		Aerodynamics of indoor farming, particle dynamics in cold spray	NUS/NTU/SUTD	
93	Fluid Dynamics (FD)	Dr. Ooi Chin Chun	Scientist II	ooicc@ihpc.a-star.edu.sg		Machine Learning and AI applications in Engineering solutions	NUS/NTU/SUTD	
94	EM	Wang Dan	Scientist	wangd@ihpc.a-star.edu.sg		Design optimization of novel composite and alloy structures In this project, we seek to develop novel optimization methodologies in order to explore the large design space of novel composite materials and hierarchical structures due to their high tailorability, such as curved fiber paths and non-periodic stiffener layout.	NUS/NTU/SUTD	https://scholar.google.com.sg/citations?user=IXidTCcAAA&hl=sg

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No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
95	Computing & Intelligence	Koh Enshan, Dax	Scientist I	dax_koh@ihpc.a-star.edu.sg	Applications and limitations of near-term quantum computers	Development of quantum algorithms for near-term quantum computers, with applications in optimization, quantum chemistry and machine learning. Characterizing the power of quantum computers and understanding their limitations.	NUS/NTU/SUTD	
96	Materials Science and Chemistry (MSC)	Dr. Zhang Xinglong	Scientist I	zhang_xinglong@ihpc.a-star.edu.sg	Experimental and Computational Mechanistic Investigation of Organotransition Metal-Catalyzed Alkene Functionalization	In collaboration with experimental group, we will employ computational methods to complement experimental investigation of mechanisms underlying transition metal-catalyzed alkene functionalization. In addition to conventional DFT mechanistic investigations, available machine learning potentials can be tested for their feasibility in these mechanistic studies.	NUS/NTU/SUTD	https://xinglong-zhang.github.io/

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No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
97	AI3	Prof. Ong Yew Soon	Chief AI Scientist	asysong@ntu.edu.sg ; Ong_Yew_Soon@hq.a-star.edu.sg	Few-Shot Generalization & Optimization	Each point in the latent space corresponds to a unique concept in design, and maps to a distribution over representative solution prototypes in the output space. Transfer learning from one to the another allows one to create high-quality designs at minimal cost of obtaining data. The inevitable curse of small datasets can then be further offset by the infusion of scientific priors in building accurate and generalizable performance prediction models. In this study, the plan is to investigate Continual Learning across designs: this offers the ability to perpetually learn from a continuous stream of data, building on previous knowledge, hence exhibiting positive transfers, while also remembering previously seen tasks. Domain Adaptive Transfer Optimization that thrive under scenarios comprising either a sequence or a concurrence of multiple optimization tasks, boosting data-efficiency by adaptively transferring and reusing knowledge across related tasks will also be considered.	NTU	https://www3.ntu.edu.sg/home/asysong/home.html

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No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
98	AI3	Prof. Ong Yew Soon	Chief AI Scientist	asysong@ntu.edu.sg ; Ong_Yew_Soon@hq.a-star.edu.sg	Towards Artificial General Optimization	A general shortcoming of many existing search strategies is that the optimization run typically begins from scratch, assuming a zero prior knowledge state. In many practical applications involving time sensitive actions and/or high cost of evaluations, ignoring the knowledge gained from previous optimization exercises can lead to deleterious computational overheads in the re-exploration of similar search spaces. Therefore, the study here is to automatically transfer knowledge across problems is likely to have significant impact in dealing with the rapidly growing volume, variety, and complexity of the real-world problems of today. In the context of autoML, for instance, the key consideration is to study ML models and weight agnostic deep neural networks that are directly trained in conjunction with the optimization algorithm so as to produce high quality decisions.	NTU	https://www3.ntu.edu.sg/home/asysong/home.html
99	AI3	Prof. Ong Yew Soon	Chief AI Scientist	asysong@ntu.edu.sg ; Ong_Yew_Soon@hq.a-star.edu.sg	Interpretable Representation Learning and Unified Representations of Digital Designs	Deep representation learning and generative models offer a path to the automated discovery of latent spaces, with well-known successes in applications involving image, audio, or text data. Recent work on creative adversarial networks, in the field of art, has also shown the potential to produce seemingly realistic outputs that are qualitatively different from those seen during training. However, current architectures and learning procedures are restricted to specific domains where there is little dearth of data or emphasis on guaranteeing physical validity since existing methods do not generalize to domains where data is expensive to obtain and outputs are subjected to complex multiphysics phenomena, and must therefore satisfy scientific/engineering principles. Present study shall explore Interpretable Representation Learning and Unified Representations of Digital Designs, where information theoretic extensions to learn semantically meaningful disentangled representations and compressed latent representations unifying alternative forms of input features in 3D geometric modelling will be considered.	NTU	https://www3.ntu.edu.sg/home/asysong/home.html